

**I CLAIM:**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23

1. A multi-part, separable plunger assembly comprising:
  - a sleeve with an open end;
  - said open end further comprising construction from a ferrous material;
  - a plug with a top comprising a mating member to the open end;
  - said plug further comprising a magnet; and
  - wherein said magnet couples the open end to the plug.
2. The plunger of claim 1, wherein the open end further comprises a female mating member, and the plug top further comprises a male mating member.
3. The plunger of claim 2, wherein the plug top further comprises a removable cap which secures a magnet in a hollow in a plug body.
4. The plunger of claim 3, wherein the hollow further comprises a non-magnetic isolator means functioning to

1 radiate longitudinally a field of magnetic waves and improve  
2 a magnetic coupling from the magnet to the sleeve open end.  
3

4 5. The plunger of claim 1, wherein the sleeve further  
5 comprises a pad plunger with spring-loaded interlocking  
6 pads.  
7

8 6. The plunger of claim 1, wherein the sleeve further  
9 comprises a solid ring sidewall plunger.  
10

11 7. The plunger of claim 1, wherein the sleeve further  
12 comprises a shifting ring sidewall plunger.  
13

14 8. The plunger of claim 1, wherein the sleeve further  
15 comprises a brush sidewall plunger.  
16

17 9. A plunger for a well producing through a  
18 production string communicating with a hydrocarbon  
19 formation, said plunger comprising:

20 at least two separable sections, each section  
21 movable independently downwardly in the well;  
22 said sections being united at a bottom of the well  
23 for upward movement together in the well; and

1            wherein at least two of said sections have a  
2            magnetic coupling therebetween.

3

4            10. The plunger of claim 9, wherein one section  
5 further comprises an upper sleeve, and one section further  
6 comprises a lower plug, and said lower plug has a magnet  
7 which couples to an open end of the sleeve.

8

9            11. The plunger of claim 10, wherein the lower plug  
10 further comprises a non-magnetic isolator, thereby  
11 improving the magnetic coupling to the sleeve.

12

13            12. A multi-part, separable plunger assembly  
14 comprises:

15            a sleeve means functioning to allow fluids to pass  
16            through its center when traveling downwardly in  
17            a well while separated from a plug means;

18            said plug means functioning to prevent the fluids  
19            from passing through the sleeve center while the  
20            plug means is coupled to the sleeve means; and

21            a magnetic coupler means functioning to  
22            magnetically couple the sleeve means to the plug  
23            means;

24

1        13. The plunger assembly of claim 12, wherein the plug  
2 means further comprises a ball made of ferrous material, and  
3 the magnetic coupler means further comprises a magnet on the  
4 sleeve means.

5

6        14. The plunger assembly of claim 12, wherein the plug  
7 means further comprises a plug having a top portion with a  
8 magnet therein.

9

10       15. A multi-part, separable plunger assembly  
11 comprising:

12       a sleeve with an open end;

13       said open end further comprising a spring-loaded  
14 retaining ball;

15       a plug with a top comprising a mating groove for  
16 the spring-loaded retaining ball; and

17       wherein said spring-loaded retaining ball couples  
18 the open end to the plug.

19

20       16. A multi-part, separable plunger assembly  
21 comprising:

22       a sleeve with an open end;

23       said open end further comprising a retaining  
24 groove;

1           a plug with a top comprising a mating O ring to the  
2           retaining groove; and  
3           wherein said mating O ring couples the open end to  
4           the plug.

5  
6           17. A    multi-part,    separable    plunger    assembly  
7 comprising:

8           a sleeve with an open end;  
9           said open end further comprising a flexible locking  
10          clamp;  
11          a plug with a top comprising a male mating member  
12          to the open end;  
13          said plug further comprising a receiving groove for  
14          the clamp; and  
15          wherein said clamp couples the open end to the  
16          plug.

17  
18          18. A    multi-part,    separable    plunger    assembly  
19 comprising:

20          a sleeve with an open end having a mechanical  
21          coupler means functioning to releasably secure a  
22          top of a plug; and

1           said plug top further comprising a coupler mate  
2           means functioning to mate with the sleeve  
3           mechanical coupler means.

4  
5       19. A multi-part, separable plunger assembly  
6 comprising:

7           a sleeve with an open end;  
8           said open end further comprising a spring-loaded  
9           retaining ball;  
10          a bottom mechanism comprising a ball sized for  
11          retention by the spring-loaded retaining ball; and  
12          wherein said spring-loaded retaining ball couples  
13          the open end to the bottom mechanism.

14  
15       20. A multi-part, separable plunger assembly  
16 comprising:

17           a sleeve with an open end;  
18           said open end further comprising a retaining  
19           groove;  
20           said retaining groove having a compression ring;  
21          a bottom mechanism comprising a ball sized for  
22          retention by the compression ring; and

1           wherein said compression ring couples the open end  
2           to the bottom mechanism.

3  
4           21. A multi-part, separable plunger assembly

5 comprising:

6           a sleeve with an open end;

7           said open end further comprising a flexible locking  
8           clamp;

9           a bottom mechanism comprising a ball sized for  
10           retention by the flexible locking clamp; and

11           wherein said clamp couples the open end to the  
12           bottom mechanism.

13

14           22. A multi-part, separable plunger assembly

15 comprising:

16           a sleeve with an open end having a magnet coupler

17           means functioning to releasably secure a plug;

18           and

19           said plug further comprising a ball means

20           functioning to mate with the sleeve magnet

21           coupler means.

22